

**EIS  
SUB-APPENDIX B  
CLEAN WATER ACT SECTION 404(b)(1)**

**FINAL  
FEASIBILITY REPORT  
AND ENVIRONMENTAL IMPACT STATEMENT  
PORT EVERGLADES HARBOR NAVIGATION STUDY  
BROWARD COUNTY, FLORIDA**

**Appendix B**  
**Section 404(b)(1) Evaluation Report**  
**Port Everglades Harbor Improvement and Maintenance Dredging**  
**Broward County, Florida**

**I. PROJECT DESCRIPTION**

- a. Location. Port Everglades Harbor is located in Fort Lauderdale, Hollywood, and Dania Beach (Broward County) on the Atlantic coast of Florida.
- b. General Description. USACE analyzed 22 alternatives (including multiple depths for various components) for the Port Everglades Feasibility Study. This Environmental Impact Statement (EIS) analyzes the environmental effects of (1) the Tentatively Selected Plan ("TSP," i.e., Alternative 2E) involving dredging the Outer Entrance Channel (OEC) to an *authorized* depth of 48 feet (up to an *actual* depth of 57 feet), (2) four other alternative dredge depths for the OEC for the TSP, and (3) the No-Action Alternative. The TSP (actual depth 57-foot OEC alternative) proposes to do the following:
- 1) increase the authorized depth of the OEC from 45 feet (actual existing depths vary) to 48 feet (-48 feet MLLW) (i.e., an *actual* depth of up to 57 feet due to engineering and safety requirements), widen the seaward end of it from 500 feet to 800 feet, and extend the channel 2,200 feet seaward;
  - 2) increase the authorized depth of the Inner Entrance Channel (IEC) from 42 feet to 48 feet (resulting in an actual depth of 50 feet);
  - 3) increase the authorized depth of the Main Turning Basin (MTB) from 42 feet to 48 feet (resulting in an actual depth of 50 feet);
  - 4) widen the rectangular shoal region (the Widener, or "WID") by approximately 300 feet to the southeast of the MTB and deepen it to a new authorized depth of 48 feet (resulting in an actual depth of 50 feet);
  - 5) widen the Southport Access Channel (SAC) in the proximity of berths 23 to 26, referred to as the knuckle, by about 250 feet and relocate the United State Coast Guard (USCG) facility, a General Navigation Feature (GNF), easterly on USCG property;
  - 6) shift the existing 400-foot wide SAC about 65 feet to the east from approximately berth 26 to the south end of berth 29 to provide a transition back from the expanded Widener area in the north to the existing Federal channel limits to the south;
  - 7) increase the authorized depth of the SAC from 42 feet to 48 feet (from the area adjacent to berth 23 to the south end of berth 32), resulting in an actual depth of 50 feet;
  - 8) deepen the Turning Notch (TN), including an area currently being expanded and incorporated into the TN by the local sponsor, from 42 feet to 48 feet (resulting in an actual depth of 50 feet); widen the SAC to the east (across from the TN) by an additional 100 feet over a length of about 1,845 feet; and widen the western edge of the SAC from near the south end of berth 29 to a width of up to approximately 130 feet at the north edge of the TN;
  - 9) conduct environmental mitigation (see below);

- 10) pre-treat rock substrates as necessary and take appropriate measures to safeguard protected species during that process;
  - 11) dispose of dredged material east of the Port at the Offshore Dredged Material Disposal Site (ODMDS), which is currently proposed for expansion by USEPA. If it is not expanded, the Corps would complete a one-time designation of a disposal site under Section 102 of MPRSA for the dredged material generated by the proposed project. The Corps would adopt the NEPA document prepared by EPA for the expansion effort.
- c. Avoidance and Minimization of Impacts. Impacts to important habitat types have been reduced with each iterative set of proposed plans over that past decade of planning:
- 1) Mangrove wetland impacts assessed in 2001 ranged from 33 to 45 acres for various alternatives. The tentatively selected plan now proposes to impact only 1.16 acres of mangroves.
  - 2) A substantial reduction in hardbottom impacts was achieved through the reduction of the proposed OEC “flare” on the eastern terminus. Planners reduced the width of the terminus (i.e., the width of the channel at the point where vessels would enter the channel) from 1,000 feet to 800 feet. This reduced the impacts to hardbottom and reef habitats by approximately three acres by reducing the amount of reef being permanently removed by the project.
  - 3) Another major effort to avoid and minimize damage to reef organisms is the direct transplantation of scleractinian corals (over 10 cm in diameter or height) from the direct impact area to either nursery areas coordinated with the resource agencies or to mitigation sites, just prior to construction of the TSP. To allow for these corals to be relocated directly to the mitigation sites just prior to construction, the contractor will either install at mitigation sites purchased, quarried, native limestone, or rock produced from construction operations (i.e., pre-treatment of rock). Approximately 10,000 scleractinian corals greater than 15 cm in diameter are located in the direct impact area of *the third reef*, and 3,200 scleractinian corals greater than 15 cm in diameter are located in the direct impact area of *the second reef*. Between 12,000 and 13,000 of these corals are greater than 10 cm in diameter or height and these would be relocated to ensure that reproductively capable corals in the impact area are preserved.
  - 4) Reductions in the project footprint size during the plan formulation process will result in the avoidance or minimization of certain impacts. Dredging in the DCC, TN and STB have been eliminated from plans. This will decrease the time of operation for construction equipment (originally estimated at four years of uninterrupted construction in 2004), and so decrease the time during which species using the Port and adjacent habitats may be directly or indirectly affected.
  - 5) Finally, the project dredge depth has been reduced from -50 feet MLLW to -48 feet MLLW. This resulted in the reduction of approximately one acre of impacts to hardbottom resources.
- d. Mitigation of Unavoidable Impacts. To compensate for the effects of the action on various habitat types, USACE has proposed the following: (a) mitigate for the removal of 4.01 acres of seagrass and (b) the loss of 1.16 acres of mangroves in the project footprint (including within the channel and resulting side slopes) through use of an on-going

habitat improvement project at West Lake Park. From that project, the Federal project will be permitted to use 2.4 seagrass functional units and one (1) mangrove functional unit, respectively, due to previously permitted restoration, enhancement, and preservation of like habitats in this county-operated, state-owned natural area located to the south of the project area; (c) mitigate for the direct removal of 10.10 acres of complex, high-profile, reef habitat through the creation of approximately 12.57 acres of high-profile artificial reef habitat, and (d) mitigate for the direct removal of 5.07 acres of less complex, low-profile hardbottom habitat (including channel wall habitat and all indirect effects to adjacent hardbottom habitats) by creating 6.92 acres of low-profile hardbottom.

- e. Authority and Purpose. The Port Everglades Feasibility Study is authorized through House Document 126, 103rd Congress, 1st Session, and House Document 144, 93rd Congress, 1st Session and by a resolution of the House Committee on Transportation dated May 9, 1996. The primary objectives for the project considered in the Port Everglades Feasibility Study are the following: (1) decrease costs associated with vessel delays from congestion, channel passing restrictions, and berth deficiencies at Port Everglades through the year 2067; (2) decrease transportation costs through increasing economies of scale for cargo and petroleum vessels at Port Everglades through the year 2067; and (3) increase channel safety and maneuverability at Port Everglades for existing vessel use as well as for larger vessels through the year 2067.
- f. General Description of Dredged or Fill Material. Material to be removed includes organic material such as peat, clay, silt, sand, and rock. Most of the material is in situ layered formations of rock and finer materials.
  - (1) General Characteristics of Material: The majority of materials within the project area include inter-bedded layers of sand and rock with occasional massive formations of very hard rock. Additional materials include silts, clays, and organic peat material. Sediment constituents encountered at the Port vary greatly according to core boring location and elevation.
  - (2) Quantity of Material: A total of 5,470,549 cy of material will be dredged over a six-year period from the project area. Most of the material will be placed in the ODMDs, and appropriate material (>2 feet in diameter) will be placed on the artificial reef site.
  - (3) Source of Material: The dredged material will be removed from the outer and inner entrance channels, interior basins, and access channels within Port Everglades. Material for the artificial reef creation site (approximately 100,000cy) will consist of appropriate rock from these areas as well as native limestone boulders from nearby quarries.
- g. Proposed Disposal Sites. The dredged material will be placed in the ODMDs site located northeast of the Outer Entrance Channel or in the artificial reef mitigation site, as appropriate (for rock at least two feet in diameter).
- h. Description of Disposal Methods. The type of dredge(s) used will affect methods used to convey the material to the disposal sites. For disposal in the ODMDs, split hull or similar barges will most likely be used. If a mechanical dredge is used, the larger dredged material may be removed and segregated at the construction site for use in constructing the hardbottom mitigation sites. Larger rock material would be placed on one barge to be

transported to the mitigation site, while other materials would be placed on a separate barge/scow for placement at the offshore disposal site.

## II. FACTUAL DETERMINATIONS

### a. Physical Substrate Determinations.

- (1). Substrate Elevations The existing depths are between approximately +10 feet and -52 feet.
- (2). Sediment Type. Peat, clay, silt, sand, rock.
- (3). Fill Material Movement. No movement is expected at the artificial reef site or the ODMDS site.
- (4). Physical Effect on Benthos. Wherever material is placed on the substrate, the benthic inhabitants will be lost. However, rapid recovery of the benthic community is expected. The artificial reef site will replace functions lost from the impact sites.
- (5). Other Effects. The artificial reef creation site will result in a beneficial effect to the marine community and recreational fishing. Potential turbidity effects are addressed below.

### b. Water Circulation, Fluctuation and Salinity Determinations. Water fluctuation, circulation and salinity will not be adversely affected.

### c. Suspended Particle/Turbidity Determinations.

- (1). Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Sites. Except for minor disturbances at the dredging site, little turbidity is expected outside the immediate dredging area during construction; state water quality and turbidity standards will be met at all times during construction. Dredges will observe strict adherence to shut-down protocols if there is any risk to downstream water quality during construction. Turbidity levels at the ODMDS will adhere to conditions governing use of that area.
- (2). Effects (Degree and Duration) on Chemical and Physical Values
  - (a). Light Penetration. No long-term adverse effects to light penetration are expected in the vicinity of construction activities. A slight reduction may during dredging, but because of tidal action in the harbor these effects will be of short duration. The area deepened by dredging would have slightly less light penetration near the bottom.
  - (b). Dissolved Oxygen. Dissolved oxygen (DO) levels should be unaffected by construction activities.
  - (c). Toxic Metals and Organics. No toxic metals or organics are known to occur at the sites.
  - (d). Pathogens. Not applicable.

- (e). Aesthetics. The presence of equipment during dredging activities will be aesthetically displeasing; however, upon completion of these activities all equipment will be removed. Therefore, there will be no long-term adverse aesthetic impacts.
- d. Contaminant Determinations. No sources of pollutants or contaminants have been identified within the construction or disposal areas.
- e. Aquatic Ecosystem and Organism Determinations.
- (1). Effects on Plankton. No adverse impacts expected.
- (2). Effect on Benthos. Benthic habitat will be lost in the construction template, but will be compensated for at the mitigation site(s). Existing benthic organisms at the artificial reef site will be lost due to replacement of that system by placement of rock materials on the substrate, but long-term population-level effects on benthic infauna in the area are not anticipated. Benthic faunal diversity is anticipated to increase in the area surrounding the mitigation reefs.
- (3). Effect on Nekton. No adverse impacts expected.
- (4). Effect on the Aquatic Food Web. The artificial reef creation will result in a beneficial effect to the aquatic food chain in those areas. In impact areas, foraging species may have to be relocated to adjacent areas for benthic resources.
- (5). Effects on Special Aquatic Sites.
- (a). Sanctuaries or Refuges. No sanctuaries or refuges are located in the project area.
- (b). Wetlands. 1.16 acres of mangrove habitat will be removed. Mitigation will be provided at Westlake Park.
- (c). Mud Flats. No adverse impacts expected.
- (d). Vegetated Shallows. 4.01 acres of seagrasses will be removed. Mitigation will be provided at Westlake Park.
- (e). Reefs. A total of 15.34 acres of rock/rubble, hardbottom, or other colonized habitat will be impacted. These impacts will be mitigated at the artificial reef site.
- (f). Threatened and Endangered Species. 3.57 acres of *Halophila johnsonii* (monospecific or mixed beds) will be impacted by dredging. Mitigation will be provided at Westlake Park. Protective measures for other protected species during construction including the West Indian manatee, smalltooth sawfish, and sea turtles will be implemented in accordance with the Biological Opinions issued for the project.
- (g). Other Wildlife. Adverse impacts to other wildlife and marine species will be minor. Where appropriate, protective and mitigative measures will be taken.
- f. Proposed Disposal Site Determinations.
- (1). Mixing Zone Determination. Not applicable.

(2). Determination of Compliance with Applicable Water Quality Standards. State water quality certification will be obtained for the work and applicable state water quality standards will be met during construction.

(3). Potential Effects on Human Use Characteristics. No adverse impacts expected.

(a). Municipal or Private Water Supply. No effect.

(b). Recreational and Commercial Fisheries. No adverse impacts expected.

(c). Water Related Recreation. Minor temporary adverse effects to recreation could occur during dredging operations. However, construction of the artificial reef site would result in a long-term beneficial effect to recreation.

(d). Aesthetics. The presence of construction equipment during the construction period will be unsightly; however, upon completion of construction the equipment will be removed and there will be no long-term adverse aesthetic impacts.

(e). Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites and Similar Preserves. 1.19 acres of mangrove habitat and 0.9 acres of uplands will be lost from John Lloyd State Park.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. The creation of the artificial reef site would offset the loss of productivity from the impacted reef areas. 4.01 acres of seagrass will be lost with the project, but approximately 8 acres will be created as mitigation at Westlake Park. The loss of 1.19 acres of mangrove wetlands will be offset by creation of the mangrove wetlands at Westlake Park. Therefore, all impacts with this project will be mitigated and no cumulative impacts are expected.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Secondary impacts on the aquatic ecosystem are not expected.

### **III. Findings of Compliance or Non-Compliance With the Restrictions on Discharge**

a. Adaptation of the Section 404 (b)(1) Guidelines to this Evaluation: No significant adaptations of the guidelines were made relative to this evaluation.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem : No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States. Further, no less environmentally damaging practical alternatives to the proposed actions exist. The no action alternative would result in the continued safety and operational restrictions to occur at the Port.

c. Compliance with Applicable State Water Quality Standards: After consideration of disposal site dilution and dispersion, the discharge of fill materials will not cause or contribute to, violations of any applicable State water quality standards for Class III waters. The District Commander may seek exemption under 404(r) once the Section 404(b)(1) compliance is met and if we are unable to obtain the water quality certification at the time of submittal of the draft feasibility report to higher authority.

- d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 Of the Clean Water Act: The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.
- e. Compliance with Endangered Species Act of 1973: The disposal of fill material for creation of the artificial reef for project mitigation will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.
- f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972: No marine sanctuaries are located within the project area.
- g. Evaluation of Extent of Degradation of the Waters of the United States: The placement of fill material and dredging of material within the project footprint will result in unavoidable adverse effects on hardbottom, seagrass, and mangrove wetland habitats as well as essential fish habitat. These effects will be mitigated for by construction of mangrove and seagrass habitat at West Lake Park and artificial reef habitat near the harbor. Beneficial effects would occur due to increased biotic diversity and lead to an increase in recreational activities within the artificial reef site. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.
- h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem: Appropriate steps have been taken to minimize the adverse environmental impact of the proposed action. The material proposed for artificial reef creation has low silt content, therefore, turbidity due to silt will be low during placement. Turbidity will be monitored so that if levels exceed State water quality standards of 29 NTU's above background, the contractor will be required to cease work until conditions return to normal. Measures would be taken to minimize sediment deposition on sensitive reef organisms.

On the basis of the guidelines, the proposed dredging and disposal sites are specified as complying with the requirements of these guidelines.